

**REMARKS**

Claims 1-6 and 13-24 are pending. No new matter has been added by way of the present amendment. For instance, claim 1 has been amended to define a specific intensity and duration of irradiation as supported by the present specification at page 5, line 36 to page 6, line 12. Newly added claims 19-24 are supported by the present specification, for instance, reference is made to page 3, lines 31-35, page 4, lines 1-2, page 5, lines 4-9, as well as the Examples, wherein stress is reduced and wherein compressive stress is converted to tensile stress. Accordingly, no new matter has been added.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.

**Issues under 35 U.S.C. §102(b)**

The Examiner has rejected claims 1 and 6 under 35 U.S.C. §102(b) as being anticipated by Bozler et al., USP 4,619,894 (hereinafter referred to as Bozler '894). Applicants respectfully traverse.

Applicants point out that independent claim 1 relates a method for manufacturing a photomask blank having a film of at least one layer formed on a substrate, comprising the steps of forming a film on a substrate, and irradiating the entire surface of the film with light from a flash lamp. In particular, Applicants direct the Examiner's attention to the fact that the "entire surface of the film" is irradiated with light from a flash lamp. Moreover, the intensity and duration of irradiation are defined in claim 1. Applicants submit that at least the limitations concerning irradiation of the entire surface of the film, as well as the specific intensity and

duration of irradiation are completely absent from Bozler ‘894. Accordingly, there exists no anticipation. The Examiner is therefore respectfully requested to withdraw this rejection.

**Issues under 35 U.S.C. §103(a)**

The Examiner has rejected claims 1-18 under 35 U.S.C. §103(a) as being obvious over Sato et al., USP 6,806,021 (hereinafter referred to Sato ‘021) in view of Bozler ‘894. Applicants respectfully traverse this rejection.

Independent claim 1 of the present invention, upon which all other pending claims depend, relates to a method for manufacturing a photomask blank having a film of at least one layer formed on a substrate, comprising the steps of forming a film on a substrate, and irradiating the entire surface of the film with light from a flash lamp, wherein the intensity of the irradiation is in a range of 0.1 to 100 J/cm<sup>2</sup> and the duration of the irradiation is up to 1 second.

However, when the Sato ‘021 and the Bozler ‘894 references are viewed in their entirety, those of skill in the art are provided with no motivation to construct the presently claimed invention. Accordingly, Applicants submit that the Examiner has failed to present a valid *prima facie* case of obviousness.

For instance, Applicants point out that neither Sato ‘021 nor Bozler ‘894 suggest or disclose irradiating the entire surface of the film of the photomask blank with a flash lamp. Although these references disclose exposing certain layers to radiation, such exposure is always a part of the patterning process. In Bozler ‘894, selected regions of a cermet layer are exposed. In Sato ‘021, a flash lamp is employed as an energy beam as applied to an intermediate film functioning as a mask. However, this occurs after a resist pattern has already been formed.

Accordingly, neither of the references suggest or disclose the preparation of a photomask blank, that is, a non-patterned layer, which is exposed with a flash lamp. Based upon this distinction alone, Applicants submit that the Examiner has failed to present a valid *prima facie* case of obviousness.

Further, Applicants again stress that the Examiner has not provided any supporting evidence concerning the statement at page 3, lines 8-9 of the Final Office Action where the Examiner asserted that “the use of heat treatment for substrates to remove stresses in a bulk substrate material is well known.” The Examiner has not cited any supporting documentation for this “well known” use. Moreover, there is no indication that such heat treatment has been known for the preparation of a photomask blank. If the Examiner intends to take official notice of the alleged “well known” use in conjunction with the preparation of a photomask blank, Applicants request that he do so on the record.

In this regard the Examiner is respectfully requested to refer to *In re Zurko*, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001) (holding that general conclusions concerning what is “basic knowledge” or “common sense” to one of ordinary skill in the art without specifying factual findings and some concrete evidence in the record to support these findings will not support an obviousness rejection).

Also, now that Applicants have challenged the Examiner’s assertion of official notice. The Examiner must now provide documentary evidence if the rejection is to be maintained. In this regard, the Examiner is requested to refer to 37 C.F.R. §1.104(c)(2) and *Zurko*, 59 USPQ2d at 1697.

Alternatively, if the Examiner is relying upon personal knowledge to support the finding of what is known in the art, the Examiner is respectfully requested to provide an affidavit or declaration setting forth specific factual statements and explanations to support such a finding. In this regard the Examiner is referred to 37 C.F.R. §1.104(d)(2).

Also, Applicants again take this opportunity to distinguish removing stress in a bulk substrate from the present invention. That is, the present invention provides a method of changing stress of a film on a substrate. This stress-change technique differs from heat treatment for reducing stress in a bulk substrate. After irradiating a flash lamp, compressive stress is converted to tensile stress (See Example of the present specification). This change is not mere stress relaxation. In general heat treatment, heat is applied to the whole of the substrate. On the other hand, flash lamp irradiation is able to heat only the film on the substrate. Heat treatment by a halogen lamp cannot change stress type (See Comparative Example of the present specification).

Also, Sato '021 disclose: "As for the means irradiating the energy beam 105, it is preferable to employ a flash lamp. Because the flash lamp is high in irradiation intensity, so that the densification or oxidation of the intermediate film 104 as a mask can be promoted." Thus, an object to the use of the flash lamp in Sato '021 is to densify or oxidize a film on a silicon substrate. On the other hand, an object of the present invention is to minimize warpage of a photomask blank by changing the film stress. Sato '021 fail to suggest or disclose how to change film stress. To stress this distinction, Applicants have added new claims 19-24.

Additionally, Applicants point out that none of the above deficiencies can be cured by the secondary reference of Bozler '894. Thus, in summary, Applicants respectfully submit that the

Application No. 10/724,734  
Amendment dated June 1, 2006  
Reply to Office Action of February 1, 2006

Docket No.: 0171-1045P

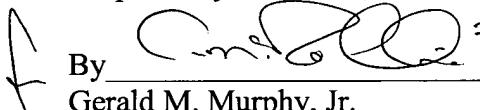
Examiner has failed to present a valid *prima facie* case of obviousness. Accordingly, the Examiner is respectfully requested to withdraw all rejections and allow the currently pending claims.

If the Examiner has any questions or comments, please contact Craig A. McRobbie, Registration No 42,874 at the offices of Birch, Stewart, Kolasch & Birch, LLP.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to our Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under § 1.17; particularly, extension of time fees.

Dated: June 1, 2006

Respectfully submitted,

By  #42,874

Gerald M. Murphy, Jr.  
Registration No.: 28,977  
BIRCH, STEWART, KOLASCH & BIRCH, LLP  
8110 Gatehouse Road  
Suite 100 East  
P.O. Box 747  
Falls Church, Virginia 22040-0747  
(703) 205-8000  
Attorney for Applicant